

AMENDMENTS TO THE CLAIMS

Please enter amendments to the claims to cancel Claims 13-158, without prejudice to or disclaimer of any subject matter. A complete listing of the claims, including markings to show any changes made to currently amended claims, follows beginning on the next page.

COMPLETE LISTING OF CLAIMS

1. (Original) An automated batch aerosol method for making particles of a selected composition, the method comprising:

batch processing of a batch of precursor liquid, comprising a liquid vehicle and a precursor material, to manufacture a batch of particulate product, the batch processing including batch initiation operations, batch termination operations and intermediate operations, the intermediate operations occurring between the batch initiation operations and the batch termination operations;

the intermediate operations comprising:

(a) generating an aerosol stream, in an ultrasonic aerosol generator including a plurality of activated ultrasonic transducers, from a carrier gas and the precursor liquid, the aerosol stream including droplets comprising the precursor liquid dispersed in aerosol form in the carrier gas, the aerosol generator including at least one inlet receiving precursor liquid feed to the aerosol generator;

(b) supplying the carrier gas to the aerosol generator from a carrier gas supply system in fluid communication with the aerosol generator;

(c) supplying the precursor liquid feed from a precursor liquid supply system in fluid communication with the aerosol generator; and

(d) forming the particles in the aerosol stream, comprising heating the aerosol stream in an aerosol heater in fluid communication with the aerosol generator;

prior to commencement of the batch initiation operations and after completion of the batch termination operations, the aerosol stream not being generated;

the batch initiation operations comprising commencing generation of the aerosol stream and the batch termination operations comprising ceasing generation of the aerosol stream; and

at least one operation during the batch initiation operations, the intermediate operations and the batch termination operations being automatically controlled at the direction of an electronic processor processing instructions for manufacture of the particles of the selected composition.

2. (Original) The method of Claim 1, wherein the batch initiation operations comprise activating the ultrasonic transducers.

3. (Original) The method of Claim 2, wherein the step of activating the ultrasonic transducers comprises automatically activating, at the direction of the electronic processor, the ultrasonic transducers.

4. (Original) The method of Claim 2, wherein a flow path for the aerosol stream comprises the aerosol generator and the aerosol heater; and

the batch initiation operations comprise automatically pressure testing the flow path for leaks prior to activating the ultrasonic transducers, the pressure testing being controlled at the direction of the electronic processor.

5. (Original) The method of Claim 4, wherein the flow path further comprises an aerosol cooler downstream from the aerosol heater.

6. (Original) The method of Claim 5, wherein the flow path further comprises a particle collector downstream of the aerosol cooler.

7. (Original) The method of Claim 2, wherein the batch initiation operations comprise, prior to the step of activating the ultrasonic transducers, automatically commencing, at the direction of the electronic processor, to supply the precursor liquid feed to the aerosol generator.

8. (Original) The method of Claim 7, wherein the batch initiation operations comprise, after the step of commencing to supply the precursor liquid feed and prior to the step of activating the ultrasonic transducers, establishing circulation of the precursor liquid from the precursor liquid supply system to the aerosol generator, through the aerosol generator and back to the precursor liquid system.

9. (Original) The method of Claim 8, wherein the step of establishing circulation comprises automatically heating, at the direction of the electronic processor, at least a portion of the circulating precursor liquid, to raise the temperature of at least a portion of the aerosol generator.

10. (Original) The method of Claim 9, wherein the heating is automatically discontinued, at the direction of the electronic processor, after the temperature of the circulating precursor liquid has risen above a predetermined level.

11. (Original) The method of Claim 2, wherein the batch initiation operations comprise, prior to the step of activating of the ultrasonic transducers, automatically increasing, at

the direction of the electronic processor, temperature within the aerosol heater.

12. (Original) The method of Claim 11, wherein the aerosol heater comprises at least two end caps, a first said end cap adjacent a flow entrance into the aerosol heater and a second said end cap adjacent a flow exit from the aerosol heater, the step of increasing the temperature within the aerosol heater comprising cooling, at the direction of the electronic processor, at least one of the first and second end caps.

Claims 13 –158 (Cancelled).

159. (Original) An aerosol method for making particles, the method comprising:
generating, in an aerosol generator, an aerosol stream comprising droplets of a precursor liquid dispersed in a carrier gas;

conducting the aerosol stream from the aerosol generator to an aerosol heater, comprising flowing the aerosol stream through a conduit located between the aerosol generator and the aerosol heater; and

forming the particles in the aerosol stream, comprising heating the aerosol stream in the aerosol heater;

wherein, at least a portion of the conduit is cooled during step of conducting the aerosol stream from the aerosol generator to the aerosol heater.

160. (Original) The method of Claim 159, wherein the conduit has a first conduit portion conducting flow of the aerosol stream in a first direction and a second conduit portion directing flow of the aerosol stream in a second direction, the first conduit portion being upstream from the second conduit portion, the step of cooling comprises cooling the first conduit portion.

161. (Original) The method of Claim 160, wherein, the temperature of the aerosol stream in the first conduit portion is maintained a temperature low enough so that the dispersed phase in the aerosol stream flowing through the first conduit portion is maintained substantially in a droplet form; and

the temperature of the aerosol stream in the second conduit portion is maintained at a temperature that is high enough so that at least a portion of the disperse phase in the aerosol stream in the second conduit portion is in particulate form.

162. (Original) The method of Claim 160, wherein the first conduit portion and the second conduit portion are separated by a bend in the conduit.

163. (Original) The method of Claim 162, wherein the bend comprises at least about a 90° change in the direction of flow from the first direction to the second direction.

164. (Original) The method of Claim 160, wherein the first direction is substantially vertical and the second direction is substantially horizontal.

165. (Original) The method of Claim 160, wherein the step of cooling the first conduit portion comprises directing a cooling gas at an exterior surface of the first conduit.

166. (Original) The method of Claim 160, wherein the second conduit portion is substantially not cooled.